

VOSSLOH SWITCH SYSTEMS
PRODUCT LINE CATALOGUE





 **V-Met**

A full range of turnouts for Metros

vossloh
enabling green mobility

The turnout specialists for all your Metro projects

The metro is a mass mode of transport, which was constantly developing during the last century. Vossloh a pioneer in the railway field, has long been demonstrating the effectiveness of its products in Europe and throughout the world. V-Met is a full range of turnouts dedicated to metros of all types: standard, light and automatic with steel wheels or rubber tyres.

By relying on its wide range of internal skills and broad experience, Vossloh has made a major contribution to the various urban transport systems in terms of:

- › Special characteristics linked to the various types of transport vehicle
- › Harmonious integration in city centres and accessibility to nearby urban communities
- › Laying types: on concrete bearers, slabs, timber and composite
- › Installation on above ground or underground
- › Rail profile types
- › Maintenance constraints
- › Sustainable development



Vossloh develops modern, high technology turnouts for tomorrow's urban transport

Our turnouts are perfectly adapted to specific geometrical constraints, permitting metro traffic movements in optimum conditions of safety and comfort for passengers.

They also take into account environmental constraints in order to limit noise and vibration levels as far as possible to protect the well-being of residents.

We manufacture turnouts of all types in line with the usual tangents and radii: single turnouts, single crossover, scissors crossovers, etc. Our turnouts are designed to handle the heavy stresses due to high traffic density and speed in an optimum way.



A full range of turnouts to meet all your needs

Depending on the application, geographical installation site and customer choice, Vossloh has developed two turnout families for



- › Turnouts for heavy metros using adapted conventional railway technology
- › Turnouts for metros on tyres
- › VAL turnouts for fully automatic guided transport

V-Met improves significantly the comfort and the safety of passenger, while reducing the costs of installation, maintenance and operation.



We also offer switch equipment according to the criteria selected for signalling and safety

- › Use of proven and safe systems: VCC Locking device, Paulvé Detector and MCEM 91 Point machine, which are all homologated signalling elements
- › Installation of a manual, motorised or hydraulic actuation device

Referencies

Brussels, Caracas, Dubai, Hong Kong, Cairo, Lisbon, Paris, Oslo, Monterrey, New Delhi, Santa Clara, Santiago, Singapore, Vancouver, etc.

On tyres: Chicago, Jacksonville, Lausanne, Lille, London, Lyon, Marseille, Mexico, Montreal, Orly, Paris, Rennes, Roissy, Santiago, Taipei, Toulouse, Turin, Uijeongbu, etc.



V-Net

A full range of turnouts for conventional railways

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The turnout specialist for all conventional railway projects

Vossloh is a world leader in turnout design. Our teams offer global solutions for turnouts with equipment and safety products for drive, locking, control and monitoring systems. We offer the most innovative solutions, using our international experience, while guaranteeing a high level of reliability and optimised life cycle costs.

High-performance, exclusive state-of-the-art technology

Monobloc manganese obtuse crossing with welded leg ends to link rails to the crossing. The welding of rails into the crossing in the workshop, using a special welding procedure called tri-metallic welding, offers perfect continuity of rails, in alignment and in curves, and the possibility of incorporating turnouts into Continuous Welded Rail type tracks.



Forging for switch rails, produced using a high performance industrial tool. To achieve the best life cycle performance Vossloh recommend the use of shallow depth (asymmetric) switch rails which are different to the connecting rail. Forging is done at the heel of the switch rail to allow welding to this adjacent rail.

Vossloh is the ideal partner for supplying safe, reliable, proven and more economical solutions for an ecological sustainable development approach that enables green mobility and reduces maintenance cost.

Inclined turnout to ensure running continuity

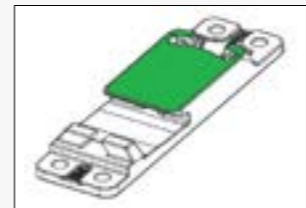
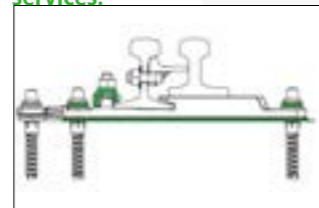
As a pioneer in this field, Vossloh has for several years, been developing the 1/20 and 1/40 inclined running table in perfect plain track continuity, by creating an innovative, patented switch rail profile, design monobloc manganese cast crossings, and inclined wedge pads for W21 fastening system.

Perfect running continuity on the turnout is guaranteed reducing maintenance and dynamic interference to rolling stock, while improving passenger comfort. Vossloh supply also turnouts which are vertical laid to suit the specific requirements of the customer. Slide chair with rollers, springs, special coatings such as Cogislide and Molybdenum make it unnecessary to lubricate:

- › Reduce maintenance costs
- › Decrease pollution
- › Optimize the availability of the tracks

Turnouts are manufactured and assembled at the workshop. They can be shipped as pre-assembled modular units on special wagons: a solution that limits tracking mobilisation time while giving better value for money.

From the design of turnouts to their delivery and associated services, Vossloh provides a full range of turnkey services.



Slide chair with resilient fastening and sliding table without lubrication

Turnouts customised for your network with safe and fully secured equipment

High-performance drive systems for improved track reliability, availability, maintainability and safety

To meet the various needs of railway infrastructures, Vossloh has developed a range of drives that are adapted to different network types. To permit optimum train movements, turnouts must be driven reliably and safely to ensure safety on the network.

V-Net

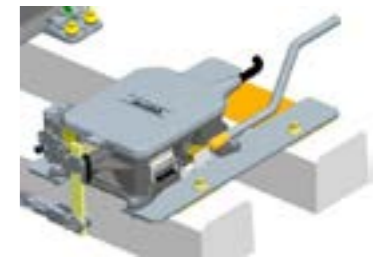
- › Integrated hydraulic drive
- › Integrated mechanical drive
- › Multiple drive
- › Single drive

All types of laying situations: concrete bearers, timber, metal sleepers, EPS (Polymer) or on slab track. All the components of turnouts are designed and produced such that their complete interchangeability is guaranteed.

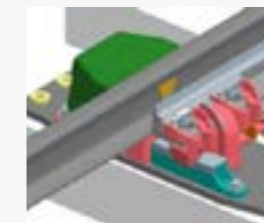
Ready for Digital Monitoring

In order to assist customers asset management regime Vossloh preinstall digital remote condition monitoring systems to new and existing point machines and accelerometers that will enable the prediction of track degradation.

MCEM91 drive mechanism
The drive in its simplest and most robust form, proven worldwide.



Proven signalling systems for controlled locking for greater safety



Clamp Lock (VCC)

It is an individual locking and switch rail control device. Both switch rails are locked and individually controlled in their final positions.



Paulvé detector

It controls the application and opening of switch rails.



Swing nose clamp lock (VPM)

It locks the swing nose. It is fixed to the cradle and works on the same principle as the VCC.

References

Algeria, Australia, Austria, Belgium, Canada, Cameroon, China, Croatia, Czech Republic, Denmark, Egypt, Ethiopia, Eurotunnel, Finland, France, Gabon, Germany, Greece, India, Indonesia, Israel, Italy, Ireland, Ivory Coast, Luxembourg, Libya, Malaysia, Morocco, Mauritania, Norway, Poland, Portugal, Romania, Saudi Arabia, Senegal, Serbia, Slovenia, Spain, Sweden, Taiwan, Thailand, Tunisia, UK, USA, Venezuela, etc.



V-Speed

A full range of turnouts for High-Speed lines

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enabling green mobility

Vossloh is the pioneer in the field of High-Speed turnouts

For more than 40 years, Vossloh has been an international leader in the design of High-Speed rail turnouts and equipment. From the beginning, the company has been involved in most of the High-Speed rail projects in Europe and in the world. The company therefore benefits from extensive experience in the engineering and manufacturing of turnouts and the associated safety devices. Because of the specific nature of High-Speed railways, Vossloh has been able to reinvent the turnout.

We have been a partner of the SNCF (Société Nationale des Chemins de Fer Français) since 1980. Together, we have developed a reliable and safe turnout, which now equips the majority of High-Speed networks throughout the world.

Today thanks to this experience, Vossloh designs and manufactures a range of products that continues to be innovative, meeting the specific needs of High-Speed lines while limiting investment and maintenance costs.

To date, thousands of turnouts for High-Speed lines have been supplied by Vossloh throughout the world. France: All the lines including connections with neighbour countries.

Europe: Belgium, Spain, Italy, UK, Sweden, etc.
Other Countries: Korea, China, Morocco, Saudi Arabia, Turkey, etc

The products that we manufacture, and which we have been developing throughout the years, are innovative, high-quality infrastructure components. They play a major role in safety and traffic movement.

Vossloh achieved special distinction for its pioneering contribution to the field of High Speed. The first turnouts for the High-Speed line were delivered in France for the Paris-Lyon line in 1980. This was a first in Europe!

Turnouts adapted to your network, laying on ballasted or slab track

The technology developed ensures the laying on ballast or concrete slab while retaining the same track components. Our turnouts can be installed on all types of laying situations by modifying the design as required.



› Ballasted track

560 km/h

When the world speed record on rail was set, a Vossloh turnout was crossed at 560 km/h.

Slab track ›



A range of high-performance and reliable turnouts Exclusive state-of-the-art technology

Swing nose crossing with manganese cradle

This technology developed by Vossloh allows trains to run on direct track at 350 km/h and up to 230 km/h in diverging track, with perfect running continuity in complete safety.

Inclined turnout to ensure running continuity

As a pioneer in this field, Vossloh has been developing the 1/20, 1/30 and 1/40 inclined running table for several years in perfect plain track continuity, by creating innovative, switch rail profiles. It reduces maintenance as well as dynamic interference to rolling stock, while improving passenger comfort.



Fully secured equipment

The Clamp Lock (VCC), Swing Nose Clamp Lock (VPM) and Paulvé detector are all homologated signalling elements and are standardised for High-Speed lines.



Switch Locking device (VCC)

It is an individual locking and switch rail control device. Both switch rails are locked and individually controlled in their final positions.



Swing nose locking device (VPM)

It locks the swing nose and is fixed to the cradle, working on the same principle as the VCC.



Paulvé detector

It controls the application and opening of switch rail and crossing point.

Proven signalling systems for safe locking!

High-performance actuation devices for improved track reliability, availability, maintainability and safety

To meet the needs of railway infrastructures, Vossloh has developed a range of actuation devices that are adapted to the constraints of High-Speed line. The switches and crossing can be driven reliably in order to ensure safety on the network.

› Single drive system



› Multiple drive system



› Integrated mechanical drive



In order to assist customers asset management regime, Vossloh preinstalls digital remote condition monitoring systems to new and existing point machines and accelerometers. The solution will enable the prediction of track degradation and optimize preventive maintenance.



**Reliable, safe switches
with low maintenance costs
Ready for Digital Monitoring !**





V-Tram

A full range of turnouts for modern tramways

Grooved rail: embedded track

Vignole rail : ballasted or slab track



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The turnout specialist for all your tramway projects

Vossloh is a world-leading specialist in the design and manufacture of switches for all urban and interurban guided transport systems. Our teams design and build global solutions for trams, whatever the technique or rail profile. For maximum comfort, safety, and reliability, we have developed monobloc switches that are machined in the mass, thereby optimizing the total cost of ownership of switches (LCC: Life Cycle Cost).

Thanks to multiple areas of competence and experience, Vossloh has made a major contribution to the development of modern tram systems, which combine in particular:



- › Adaptation to the rolling stock
- › Line geometry
- › Rail profile type
- › Various types of laying (EN 13146): concrete sleepers, slab track, etc.
- › Reduction of maintenance
- › Harmonious integration into city centres
- › Compliance with environmental constraints

We produce all types of turnouts using Vignole rails or grooved rails: single turnouts, diamond crossings, single or scissors crossovers, double junctions, harp turnouts, rail expansion joint, temporary turnouts and others, in accordance with the various tangents and usual radii.

Thanks to multiple areas of competence and experience, Vossloh has made a major contribution to the development of modern tram systems, which combine in particular:

A full range of services for all rail projects

Depending on the network, geographical installation site of the turnout and customer choice, a wide range of solutions is available:

- › Installation of a manual or motorized actuation system
- › Building up by arc welding to preserve from wear and screeching
- › Heating of switches with the possibility of regulation
- › Switch rail temporary locking device
- › Drainage and water flow (EN 124D400)
- › Ground power supply system without catenary assessments



- › **Project**
Installation studies, alignment recommendations, choice of turnouts
- › **Production**
Pre-assembly, site assistance during installation, on-site commissioning and in-track acceptance, inspection of turnouts and ALD
- › **Maintenance and after-sales service**
Inspection, diagnostics, maintenance, renovation, technical assessments
- › **Training**
Installation or maintenance of turnouts or ALD

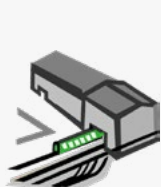
A full range of turnouts to meet all your needs

We recommend to our customers the switch type that is the most suitable for their needs according to use, location on the network and the criteria adopted for maintenance.

Embedded track: turnouts in grooved rail

- › Mixed traffic
- › Specific laying (grass, asphalt...)

The grooved rails turnouts are produced in monobloc technology developed by Vossloh.



Turnouts in depots and low-stressed lines



Turnouts for the line

Premium MB-400B



The best technical choice for a high-end product

Depending on the degree of stress undergone by the turnouts, Monobloc version technology is necessary. Switch areas are key points.

Basic MB-400B



The entry-level solution in welded components

To meet all the specifications of the international market, a mechanically welded version has been developed and adapted to the latest technical improvements.

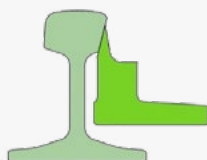
Segregated track: turnouts in vignole rail

- › Tram Train
- › Tunnels
- › Depots

The crossings of our turnouts are systematically produced in Monobloc version.



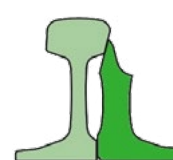
Premium TR-260A



The best technical choice for a high-end product

Asymmetrical Switch Rail with Forged Heel (Low / shallow Switch Rail) Elastic laying with IBAV system.

Eco TR-260S



The economical solution for a quality product

Symmetrical Switch Rail with Machined Heel (High Switch Rail) Rigid layin.

The range of turnouts for tramways from Vossloh very significantly improves comfort and safety, as well as reduces costs related to laying and maintenance works.

Vossloh has equipped European tramways and other major networks in the world with turnouts using all technologies and rail profiles.

More than 150 cities across all countries of the world ...

Austria, Argentina, Australia, Belgium, Bulgaria, Canada, China, Czech Republic, Egypt, Finland, France, Germany, Hong Kong, India, Italy, Israel, Great Britain, Greece, Luxembourg, Mexico, Morocco, Netherlands, Norway, Philippines, Poland, Portugal, Qatar, Slovakia, Spain, Switzerland, Sweden, United States etc.



Proven experience in European tramway networks, competence that is recognised throughout the world.

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